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Poverty and Welfare Reform

Will Communities Be Able to Cope?

Montana has one of the lowest unemployment rates in the country, yet in the last three years more people here have joined the ranks of the poor than in any other state in the nation. Sixteen percent of Montanans now live below the federal poverty level, including one-quarter of all children under the age of 18. Montana also has experienced the country's second-highest decline in median family wages in the last three years. Families make $5,100 less per year in real dollars than they did in 1973, according to a 1997 study on housing affordability in the state.

Such statistics concern Paul Miller, a UM professor of sociology who has worked on poverty issues in Montana for nearly 30 years. His current research focuses on the effects of welfare reform and its potential impact on communities, especially on volunteer-based charitable organizations that must cope with increasing requests for help in the face of lifetime limits on the amount and duration of public aid for welfare recipients.

Volunteers help bag groceries at the Missoula Food Bank.

The welfare dilemma

While Montana welfare rolls are down 50 percent since 1996, little effort is made to track people once they leave the system. With Janet Finn in UM's Department of Social Work, Miller is conducting an ongoing comparison of households enrolled in Families Achieving Independence in Montana (FAIM) – the state's revamped welfare program – with ones that are eligible but currently not receiving any assistance.

So far the researchers have received 252 completed questionnaires from households in Missoula, Ravalli, Lincoln, Hill, Lewis and Clark, Gallatin and Yellowstone counties. Families eligible for but not receiving welfare are more likely to have someone on disability or be employed at very low wages, Miller says. Households receiving FAIM, meanwhile, are more likely to be headed by single women trying to raise children with little money. This population, he says, is the primary target of welfare reform, yet the biggest barriers to self-sufficiency are child care and transportation costs, as well as lack of money.

For people in this situation, Miller says, going on welfare is a rational act. "But middle Americans, who are working harder than ever, yet earning less, have a tremendous resentment toward single, unwed mothers receiving taxpayer assistance," he says. "In their minds, welfare supports people who don't want to work, undermines the work ethic and rewards immoral behavior. And that's what welfare reform is really aimed at."

In the meantime, Miller says, few people are interested in looking at the root causes of poverty, such as the nature of the economy and the growing number of low-wage jobs.

Most people in poverty in Montana do work, Miller says, but often intermittently or at seasonal jobs and for very low wages. He has found that when faced with the costs of housing, food, transportation, child care and medical care, the average welfare recipient in Montana still comes up $280 short of meeting basic living expenses each month. As a result, food banks and meal programs are used more and more to make ends meet.

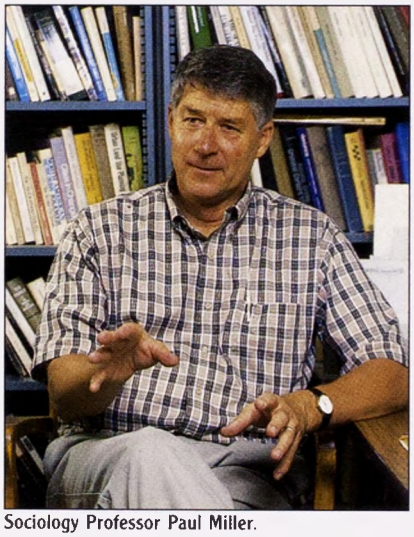
Deep enough pockets?

One of Miller's primary concerns is that nonprofit organizations – particularly in small, rural communities – won't be able to cope with the increased demand for services. In a recent survey, he says, 60 percent of 92 food banks in the state reported an average increase of 12 percent in the number of households served from 1995 to 1997. Nearly 170,000 people were served, 36,000 for the first time.

"Sixty percent of food banks also attributed some of this increase to welfare reform," Miller says. "But how much is difficult to know."

Miller says that last year the Montana Food Bank Network, which distributes food garnered from donations and *continued on page 2*

gleaned from large transportation accidents and packaging mistakes by a national organization called Second Harvest, fell 320,700 pounds short of the amount requested by member organizations. Local pantries, therefore, must depend on substantial increases in community donations to meet their local needs.


Sociology Professor Paul Miller.

"How much elasticity is there in this approach?" Miller wonders. "Will people in communities keep stepping up to fill the gap, or will they eventually get tired and turn away?"

Additionally, Miller says that under the new system there are no guarantees of assistance regardless of budget, as there were in former entitlement programs. With welfare responsibility devolved to the state, even a limited recession in local economies will mean no increase in FAIM support and even more pressure on community organizations.

An increasing dependency?

Food banks are not the only sources of help for the poor envisioned by the architects of welfare reform, Miller says. The charitable-choice clause contained in the federal welfare reform act specifically encourages state and local governments "to enter into contracts with churches and religious associations for the purpose of providing welfare services to the poor."

To find out what churches in Montana know about this clause and what they might think about stepping into a welfare role, Miller surveyed the members of the Montana Association of Churches and received replies from 168 congregations. Only about 10 percent had heard of the charitable-choice clause, he says. Eighty percent did not feel they had the experience or infrastructure to get into the social service business. On the other hand, 75 percent said that getting involved in welfare work could increase the sense of community in their location, and about 70 percent said that a faith-based approach to welfare could be an opportunity for evangelism.

Other questions revealed a high degree of ambivalence on such issues as whether playing a welfare role would cause a schism in the congregation, or even whether churches – rather than governments – should be responsible for the material welfare of the poor.

For Miller, the bottom line is that while Montana once had the least-dependent population, he sees signs that welfare reform actually is producing more needy people.

"The number-one problem (regarding poverty in our society) is low wages, not public dependency," he says. "The poor are getting hit now with language and responsibilities they cannot handle given the barriers and challenges in their lives, the existing wage structure and the overall lack of need for their labor power in this economy. To treat them with disdain and chastise them for not doing better, which is the message of welfare reform, is not fair."

Miller's welfare-reform research has been supported in part by a grant from The University of Montana and the Northwest Area Foundation to Women's Opportunity and Resource Development (WORD), a nonprofit agency in Missoula that offers an array of services and training to low-income families and individuals.

He presented some of his most recent findings at a statewide conference on "The Winds of Change: Navigating Welfare Reform" in October. The conference, held in Helena, was sponsored by the Montana Food Bank Network. Miller hopes these studies will be seen as warning signals and a catalyst for further public debate. He doesn't expect much response from government, however.

"Too much has been invested in the reform movement to stop it now," he says.

New *Vision* Magazine Arrives in January

Montana's Flathead Lake, one of the world's 300 largest lakes, has maintained a clean reputation in times when much of the world's waters have been polluted to irreversible levels. Yet a reputation could not protect the largest freshwater lake west of the Mississippi River from quality decline forever.

In fact, the lake's water quality has declined slightly in recent years, according to monitoring information from the University's Flathead Lake Biological Station.

UM's biological station at Yellow Bay is a watchful guardian of Flathead Lake. For decades, scientists have studied trends in the lake's water quality, keeping lake managers – such as local, state and tribal governments – informed.

The station provides scientific information, but no managerial authority, for the protection of Flathead Lake.

Research View readers will learn more about the biological station's 100-year role as sentinel of the lake in *Vision*, UM's research magazine, which will be mailed in January.

Watershed CPR

Working Toward Healthy Rivers

On a bright autumn morning Vicki Watson dips her net into Pattee Creek and scoops up a load of "critters and crud" from the stream bed. She swings her dripping catch to a group of eighth-graders waiting nearby with counting trays and clipboards.

"Yuck," is the general consensus. But with Watson's help the students soon set to work sorting and counting the various kinds of tiny aquatic insects present. A bit downstream another group measures water temperature, while upstream others calculate the creek's flow rate using a stick and stopwatch.

The students belong to Teresa Toller's science class from Washington Middle School in Missoula. The class visits the neighborhood creek twice a year to document its changing conditions and learn about the importance of watersheds, even small ones, to the environment and to their lives.

A professor of environmental studies at UM, Watson spends about 20 percent of her time working on water issues with schools, community organizations and government agencies.

"Montanans love their lakes and streams," Watson says, "and put a high value on water quality. But a lot of Montana's water is in trouble, and only informed citizens, acting together, can do something about it."

Professor Vicki Watson with students from Washington Middle School.

Watershed health

To every group she works with, from graduate students to grade-schoolers to citizens' committees, Watson says the same thing: "You can't have a healthy creek without a healthy watershed."

A watershed is an area of land that drains to a common body of water. This drainage can be as small as a mountain creek or as large as the Clark Fork River, which collects water from Butte to Sandpoint, Idaho, and channels it into the Columbia River.

According to Watson, watersheds need CPR – conservation, preservation and restoration. Watersheds can sustain only so much human activity, she says, and therefore the number of undeveloped watersheds must be conserved. Stream beds and banks, riparian zones and flood plains are essential to the normal functioning of a watershed and must be preserved in their near-natural state. And where watersheds have been damaged by too many roads or too many homes built on stream banks, or by poor mining, logging or grazing practices, they must be restored.

Preservation is the term that usually causes most public resistance, Watson says, because protecting critical watershed areas often is assumed to conflict with private property rights.

"But preservation does not mean locking up land from human use," she says. "Flood plains and riparian zones absorb floods, provide wildlife habitat, purify water and give us beautiful scenery. These areas work hard for us and can only do their job when they are protected from development."

Watershed house calls

To encourage more CPR action, Watson has created a Watershed Health Clinic, linking college students with public or private groups seeking technical help with watershed management.

"If your watershed is under the weather or your creek is running a temperature, call the clinic. We make house calls," Watson quips. For now, the clinic can be reached at (406) 243-5153.

The clinic gives students an opportunity to work on their people skills, Watson says, and to get real experience assessing watersheds, developing monitoring strategies and recruiting and training volunteers. In return, the partnering agency receives detailed information on which to base a plan of action. The emphasis of the clinic, Watson says, is on helping local groups better understand their watersheds so they can act to protect them.

"People get excited taking action to protect what is in their backyards," she says.

She hopes that by working to protect local watersheds, another generation will be inspired to protect their environment the way recycling inspired people in the 1970s.

As part of a national initiative to foster more community-service learning among students, the University last year gave the clinic a grant that will defray some out-of-pocket expenses students incur while working on watershed projects in different parts of the state.

"People are often surprised at what simple measurements are needed to assess their watershed," Watson says. "The key is making the measurements over many years."

In her opinion, the best instruments are a pair of well-trained eyes, plus a thermometer, net, tape measure, watch and camera. Government sources usually can supply any needed additional information.

The University System and state government offer many resources for watershed groups. The Montana Watercourse (http://www.dnrc.mt.gov) provides Know Your Watershed workshops and volunteer monitor training and loans out necessary equipment. The Montana Water Center has an informative Web page at http://water.montana.edu. Watson is devel-

CPR - *continued on page 8*

Bear Necessities

Giving *Ursus* A Chance to Recover

Five-hundred miles overhead, a satellite keeps a watchful eye on four subjects in western Montana and northwestern Wyoming. As it crosses above a facility in Maryland, it dumps data accumulated over the past three days to a central computer. With a few keystrokes, the information is downloaded to Chris Servheen's desktop and — presto — the last known movements of four *Ursus arctos horribilis* are pinpointed to within 200 feet.

Photo by Milo Burcham

Servheen, grizzly bear recovery coordinator for Region 6 of the U.S. Fish and Wildlife Service and an adjunct associate professor of wildlife biology in UM's School of Forestry, is testing the Global Positioning System as a better way to track bears. Collar-mounted GPS equipment locates a bear relative to various satellites, then transmits that information to the Argos satellite for storage and later downloading. The collar's memory is then reset to collect more location readings.

"GPS collars are better than traditional radio collars because they can be used day or night in all weather and allow precise tracking of specific animals relative to, say, roads," Servheen says, "but they are bulky and most of their battery is used for transmitting data to Argos" rather than recording positions.

So next spring Servheen and his team of biologists will try a modified, store-on-board collar on eight to 11 bears in areas near U.S. Highway 2 south of Glacier National Park and along roads near Yellowstone National Park. The new collars won't have to transmit to Argos, so they can devote all their energy to taking hourly location readings. The information will be retrieved when the GPS unit is released from the bear by remote control and falls off.

Grizzly islands

Only 800 to 1,000 grizzly bears — listed as a threatened species since 1975 — remain in the lower 48 states, according to Fish and Wildlife Service estimates. Instead of inhabiting the vast spaces they once did, grizzlies now are found in only five scattered locations in Montana, Wyoming, Idaho and Washington, a mere 2 percent of their historical range south of Canada. Only two areas — the Greater Yellowstone ecosystem and the Northern Rocky Mountain ecosystem, which includes Glacier National Park and the Bob Marshall Wilderness — have populations of several hundred bears. The remaining areas contain only five to 50 bears each.

Servheen's purview covers the four states plus the Canadian provinces of Alberta and British Columbia, where grizzly bears are more abundant.

Since bears don't respect political borders, he says, "we take an ecosystem approach to management. We have good and close relations with our Canadian colleagues because we depend on each other" for information and coordination.

To ensure the continued existence of *Ursus* arctos, the Fish and Wildlife Service's objective is to establish new populations where possible and nurture existing ones. Servheen's two management priorities currently are the restoration of grizzlies in the Selway-Bitterroot Wilderness between Idaho and Montana and the continued recovery of bears in the Greater Yellowstone ecosystem, which now boasts a healthy population of 400 to 600 bears.

One problem in grizzly bear recovery is balancing numbers with available territory. The United States has seen little or no movement of grizzly bears among the separate populations for a long time. So, as part of the federal Grizzly Bear Recovery Plan, Servheen and his team are looking at the potential to establish linkages between separate bear habitats. They use geographical information system models that score levels of human activity in areas between bear habitat. The results indicate whether bears could move between ecosystems. Where opportunities do exist, they plan ways to preserve them. Mostly this means working with local landowners and county governments to give residents the information they need to live with bears.

"We see some opportunities for linkages, but many are precluded by the amount of human activity," Servheen says. "For instance, between the Rattlesnake Wilderness, which leads to the Bob Marshall and Glacier complex, and the Bitterroot Mountains bears have to cross Interstate 90 and U.S. Highway 93. That's pretty tough."

Servheen expects to have a report on linkage possibilities out by next summer.

Lethal barriers

To complement this study, Servheen oversees research funded by the federal Department of Transportation on roads as high-speed barriers to the natural movement of bears. He hopes that using GPS collars and plotting bear movements over time will allow researchers to predict the most likely animal crossings and understand the types of cues bears use — such as vegetation, topography, time of day or season — in moving from one part of their range to another.

"Highways are the most significant factor in the fragmentation of

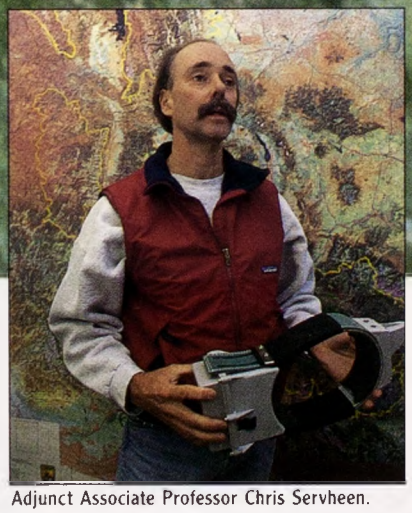


Photo courtesy of Chris Servheen

Adjunct Associate Professor Chris Servheen.

habitat for many animals," Servheen says, "and the fact that animals must cross them to get where they need to makes them a huge safety issue for both humans and animals."

Such studies also may help identify the most appropriate type of mitigation structure for road builders. Putting the road underground in strategic areas, for instance, may be much more effective than trying to build tunnels or bridges for animals to use.

Servheen's job is a difficult and political one. As Environmental Impact Statement team leader for the restoration of grizzly bears to the Selway-Bitterroot ecosystem, which includes the largest wilderness areas in the contiguous United States, he has spent hundreds of hours juggling often contentious input from federal, state, local and tribal agencies, landowners, environmental organizations and concerned citizens. The final EIS, due out in January, contains information on the history of bears in the region, habitat suitability, impacts of bears on various human activities, and the costs and effects of four alternatives to restore grizzlies to the area.

The preferred course of action would be to establish an experimental, nonessential population of 20 to 25 bears moved in from Canada and other source populations over five years.

Under this plan, Servheen says, "it would take about 100 years to get a population of 300 bears, since females typically only reproduce every three years if conditions are good."

But even assuming the EIS receives approval from the Department of the Interior, there is no guarantee of funding and, of course, no guarantee that public controversy will abate.

"On the subject of grizzly bear introduction, no one is neutral," Servheen says.

Living With Bears

1998 has been a bad year for bears.

Several black bears (*Ursus americanus*) were killed in collisions with cars in Montana. Fourteen grizzly bears (*Ursus arctos horribilis*) were shot in the Northern Continental Divide ecosystem, including Glacier National Park and associated lands, and approximately 15 were relocated because of conflicts with people.

East of the Continental Divide, record numbers of bears of both kinds came out of the mountains onto agricultural flatlands in search of food to supplement this year's scant berry crop. West of the divide, hunters had a banner black bear season with an estimated 200 killed in one area. State Fish, Wildlife and Parks staff received more than 160 calls in one month from residents in the Missoula, Blackfoot and Bitterroot valleys concerned about encroaching bears, most of which were attracted by fruit trees, pet food or garbage.

While a severe food shortage may be the immediate reason behind the unusually high number of human-bear confrontations in backyards and on farms, "more bears and more people are taking up more space, squeezing bears – and other large animals – into smaller and smaller spaces," says UM's Chris Servheen.

FWP lists a number of common-sense steps people can take to minimize bear problems: Do not feed pets outside or leave their food dishes outside; keep garbage cans and barbecues in a garage or other secure place, or make sure they have bear-proof lids; and keep in mind that fruit trees and bird seed smell delicious to bears, especially when usual food sources are low.

Health Care on Main Street

Helping Rural Hospitals Address Ethical Issues

A 70-year-old rancher whose family has worked the same land for 150 years is diagnosed with possible coronary artery disease. The nearest acute-care hospital is 200 miles away. The rancher's problem is highly treatable but will involve several tests, possible surgery and continuing medication. He tells the family doctor that he has no medical insurance nor anything to sell to pay for extensive medical care. He does not wish to pursue treatment or discuss options with his wife. His primary concern is to preserve the ranch land for future generations.

"If I ransom this place to pay for a heart," he says, "there won't be much left for anyone to live for."

The doctor, a close family friend, is left to sort out a tangle of ethical questions: Does his patient have enough information about his condition to make a fully informed decision? What are the doctor's obligations, if any, to the patient's family? How far can he go to persuade his patient to seek further treatment? Respect for patient autonomy is put into direct conflict with questions of cost, competency and doctor-patient trust.

Rural Institute researchers Ann Cook, left, and Helena Hoas.

The hypothetical case study outlined above is part of a new manual being developed by Ann Cook and Helena Hoas of the High Mountains High Plains Rural Bioethics Project at UM's Rural Institute on Disabilities. Its purpose is to help staff in rural hospitals address ethical questions that arise when distances to health care are great; financial, medical and personnel resources are scarce; and the tight-knit social fabric of small, scattered communities means that privacy, confidentiality and objectivity are difficult to maintain.

"Health-care providers in rural communities encounter these types of bioethical dilemmas all the time," project director Ann Cook says. "But so far little research has been done on how they might best be resolved in such settings."

Filling the gap

With the Rural Bioethics Project, Cook and Hoas, manager for research and evaluation, are entering uncharted waters. Their work is providing the first data on the prevalence and activities of bioethics services in rural hospitals, using a six-state region that comprises Montana, North and South Dakota, Alaska, eastern Washington, and northwestern Minnesota – some 886,000 square miles of territory. From their analysis of 123 surveys – representing about 56 percent of hospitals in the area – the researchers are developing and evaluating specially tailored bioethics materials, including bibliographies, case studies, how-to worksheets and summaries of pertinent legal and legislative issues. They hope to identify the tools most useful in rural settings and create a sustainable resource network for staff and community education.

The project began in January 1998 with a three-year, $270,000 research grant from the Charles E. Culpeper Foundation, the first such grant ever awarded in Montana. Cook expects the first phase of the project to end soon and a revised version of the manual to be distributed to all participating hospitals early next year.

She says that hospitals throughout the study area are eager for information to help them cope with dilemmas arising from patients' cost concerns, managed care requirements, and new regulations about the procurement and allocation of transplant organs.

Cook and Hoas received advice on the project from established bioethics centers around the country hungry for information from rural areas and are working closely with regional entities such as the North Dakota Medical Association. The Rural Bioethics Project has become part of a national consortium that shares information from around the country and compares how medical-ethics decisions are made in rural regions with different social, cultural, and economic histories.

Rural vs. urban

According to Cook, formal consultation on ethical issues in hospitals has evolved over the past 30 years mostly in large, urban academic medical centers. The standard model is a multidisciplinary committee comprising physicians of various specialties, nurses, administrators, clergy, community members, lawyers, professional ethicists and outside experts. Cook says that assembling such a large committee of professionals probably is not a feasible mechanism for resolving ethical conflicts in rural hospitals.

"They just don't have the time or staff to devote to it," she says.

Rural hospitals tend to be very small – 80 percent of those surveyed have 50 or fewer beds – with a limited nursing staff and sometimes only one or two attending physicians. Primary care is the main focus; specialists are rare. Many rural hospitals provide both acute and long-term care in the same facility, compounding the types of ethical issues staff must handle. And, as percentages, rural hospitals often handle more older, poorer and disabled patients – many of whom are uninsured or underinsured – than their urban counterparts. In some areas of the country, too, differences between Native American attitudes toward medicine and the standard Western tradition also may lead to unique ethical debates.

In small communities, Cook says,

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Frontiers in Neuroscience

Insights Into CNS Regeneration and Repair

The brain may be a marvel of creation, but its awesome complexity and sophisticated functioning have been bought, in evolutionary terms, by a greatly diminished capacity for regeneration and repair.

Once damaged by injury or disease, neurons in the central nervous system (CNS) – the brain and spinal cord – have difficulty knitting themselves together to re-establish normal working connections. Yet when placed in the peripheral nervous system, these cells are able to grow for long distances.

"The capacity for regeneration is there, but something is preventing it, at least in higher vertebrates," neuroscientist Diana Lurie says.

According to Lurie, an assistant professor of neuropharmacology in the Department of Pharmaceutical Sciences at UM, that something has to do with the chemical environment surrounding the severed neurons, not the physical barrier presented by the lesion itself.

Neuropharmacology Assistant Professor Diana Lurie.

Cell signals

Lurie studies cells that make up the CNS environment to understand the sequence of biochemical changes that occur following injury. Her work is supported by a five-year, $500,000 FIRST award from the National Institutes of Health and by an NIH IDEA grant, which supports research infrastructure in states that have not had much federal research funding.

Using rat and chick brains as models, she focuses her work on glial cells, of which there are many kinds. Glial cells surround neurons, providing nourishment, removing toxins and regulating cell communication.

Following injury, glial cells called astrocytes start to divide, and this increase is part of what forms a scar. But not all astrocytes divide, Lurie says, or else the scar would become huge and tumor-like. She has discovered that the enzyme known as SHP-1, present in many body tissues, appears at greatly elevated levels in some CNS astrocytes after injury. She further observed that astrocytes containing SHP-1 do not seem to divide.

"The hypothesis is that SHP-1, which we know plays a basic role in switching cell functions on and off, may be keeping the scar from growing out of control," Lurie says.

The question now is whether cells with SHP-1 release other chemicals that help or hinder regeneration. Researchers know that astrocytes produce chemical compounds that both promote and inhibit regeneration, but do not know which cells produce which compound. Identifying astrocytes that produce SHP-1 may advance that research.

In the past, she says, a scientist might injure a rat spinal cord, for example, and then "throw in all kinds of different substances to see if they would help regeneration." Nothing much really worked, so researchers decided it was time to step back and look at the basic mechanisms of what happens after injury and use that information to design a therapy.

To this end, Lurie has been wondering whether the SHP-1 enzyme would have the same dampening effect on tumors as it does on scar formation. A newly formed partnership between UM and St. Patrick Hospital in Missoula is offering her a chance to find out.

Diagnostic potential

The Montana Neuroscience Institute allies the Department of Pharmaceutical Sciences and its strong neuroscience research program with western Montana's largest neurology and neurosurgery practice. Modeled after The International Heart Institute of Montana, another University-hospital alliance, the association is expected to advance basic research and improve the treatment of patients, especially those with brain tumors.

Glial cell tumors are one of the most common forms of brain cancer, Lurie says. They are challenging to treat because very few prognostic markers exist to tell doctors whether a particular tumor will be aggressive or slow-growing or whether it will respond to radiation or chemotherapy.

Lurie screens samples of malignant tumors taken from patients at St. Patrick Hospital for the presence of the SHP-1 enzyme and correlates its level with how well the patient fared. In this way, the enzyme might be used to predict how a glial tumor will grow and respond to therapy.

In almost all samples screened so far, Lurie has found a lot of the SHP-1 enzyme. One sample contained very little enzyme and turned out to be from a patient with a very slow-growing tumor. Lurie hypothesizes that cells in slow-growing tumors are dividing less and therefore need less of the chemicals that control

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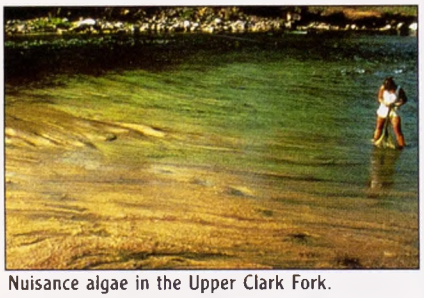
oping an online watershed course for the public; a related slide show can be found online at http://ssrl.soc.umt.edu/evst.

How green is my river?

While Watson's teaching and service try to encompass any aspect of watershed health management, her research focuses on the growth of nuisance algae, which can degrade streams and rivers and impede beneficial uses of water. In the Clark Fork River, for example, heavy algae growths clog irrigation ditches, interfere with recreation and, at times, lower oxygen and pH enough to release heavy metals from river sediments, violating water-quality standards. Watson is a member of a team of experts convened by the Environmental Protection Agency in 1995 to address the problem of nuisance algae and develop guidance for states.

One of the main causes of increased algal growth, she says, is increased nutrient loads from the watershed – from growing cities, cattle confined near streams or the destruction of natural filters like wetlands. But algae also can get worse because trees were cut near a stream, allowing more light to reach the water surface or because natural scouring floods are reduced by artificial controls on stream flow.



Nuisance algae in the Upper Clark Fork.

"Pollution is not always the culprit behind algae or any other water- quality problem," Watson says. "Sometimes the watershed itself has been altered and needs to be restored."

Nevertheless, research by Watson and others indicated that controlling nutrient loading to the Clark Fork was an important part of reducing nuisance algae. For more than 10 years, Watson has worked with the state Department of Environmental Quality and local stakeholders to understand the role of nutrients and develop a plan for controlling them. This past summer, Stone Container Corp., the city and county of Missoula and the cities of Butte and Deer Lodge signed an agreement to reduce the nutrients they add to the Clark Fork. Watson and graduate student Jim Harris now are working with the state and the Missoula County Health Department to identify current and potential future watershed projects that would reduce the amount of nutrients coming off the land.

"Watershed keeping is like housekeeping or democracy keeping," Watson says. "It never stops, and it's everybody's responsibility."

Sailing the Seven Cs

In order to ensure the future high quality of Montana water, Watson says to follow the seven Cs of watershed CPR: Understand how watersheds are connected to the streams that drain them, how they change over time and how to determine if they are in a healthy condition. Next, understand how communities depend on and affect watersheds, how to make choices between conflicting uses of the watershed, how citizens must make long-term commitments to protect their watersheds and, finally, how to take responsible and informed CPR action.

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patients and health-care providers inevitably know each other outside the boundaries of a professional practice to a degree that makes objectivity and confidentiality difficult.

"Familiarity may be a concern in urban hospitals," she says, "but it is pervasive in rural settings."

Distance to care is another factor frequently leading to ethical quandaries in rural hospitals. When serious complications develop, patients may need to transfer to a larger hospital far away where specialized care is available. Yet many are reluctant to seek needed services. They worry about the price of care and the risk of losing social supports at home. And while cost-saving measures such as early discharges may inconvenience city patients who live minutes away from a medical center, "for patients who live 20 miles down an unpaved road and 70 or 100 miles from the nearest hospital, the consequences can be devastating," Cook says.

On the other hand, patient transfers also can jeopardize the financial well-being of rural hospitals.

"The ethics of cost containment is a very real issue because if rural hospitals close, important jobs are lost and medical care becomes even more inaccessible," Cook says.

Over the next two years, the Rural Bioethics Project will focus on developing the tools to help hospital staff address ethical questions surrounding end-of-life care, patient autonomy and competence, and physician-patient trust – the areas cited most often by survey respondents as causing debate.

Cook and Hoas also are exploring the use of distance-learning technologies to link hospitals to remote resources and conducting more research on how rural health-care providers identify ethical issues and use the project's materials. The researchers have been invited to present the results of their work so far at several bioethics conferences, including the National Conference on Organization Ethics and Health Care at the University of Virginia and the Regional Conference on Medical Ethics in Grand Forks, N. D.

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growth and hence less of SHP-1.

The results to date, based on such a small sample, are not data, Lurie says; "they're a miracle." Nevertheless, they are suggestive.

Her ultimate hope, if such correlations continue, is that screening tumors for SHP-1 will become routine and the results used to help identify the best treatment.

"The goal of any biomedical research is to develop a therapy," Lurie says. "For me that therapy would be to improve or even get significant functional central nervous system recovery after injury."

The University of Montana

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